

Attorney Docket No. CHEM-30134
Application No. 10/600,810
Declaration Under 37 C.F.R. §1.132

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Kirtland P. Clark

Serial No. 10/600,810

Filed: June 20, 2003

For: **Fluorine-Free Fire Fighting Agents and Methods**

Examiner: **J. Anthony**

Art Unit: **1714**

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

DECLARATION UNDER 37 C.F.R. §1.132

I, Kirtland P. Clark, being over 21 years of age and being competent to testify to the matters stated herein, declare the following:

1. I am a citizen of the United States of America and I reside at 2616 Brookwood Drive, Mansfield, Texas 76063.
2. I am the sole inventor in U.S. Application No. 10/600,810, filed June 20, 2003.
3. I graduated in 1966 from Houghton College in Houghton, New York, with a B.S. in chemistry. I received my PhD in physical organic chemistry in 1971 from Brown University in Providence, Rhode Island.
4. From 1971 to 1973 I was a research and development chemist, at La Blanc Research, Corp. in East Greenwich, Rhode Island, working in the area of Flame Retardants. From 1973 to 1991 I was employed at Ciba-Geigy Corporation. During my time at Ciba-Geigy Corporation, I was a Senior Development Chemist, Project Leader, and, finally, a Group Leader in the areas of Plastics and Additives, Dystuffs and Chemicals and Pharmaceuticals in Cranston, Rhode Island, from 1973 to 1983; and as the Director of Corporate Research, with responsibilities in the area of Contact Lens Materials, Drug Delivery, oil and water repellents and Fluorosurfactants in Ardsley, New York from 1983 to 1991. From 1991 to 1994 I was the Vice-President of Research and Development at Dynax Corp. in Elmsford, New York, where I had responsibilities in the areas of Fluoropolymers and Fluorosurfactants. From 1995 to 1997, I headed up research at CAL Chemical Inc, of Greenwich, RI. From 1997 to present I have been Vice-President of

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Research and Development at ChemGuard, Inc. in Mansfield, Texas, in the area of Fluoropolymers and Fluorosurfactants, and fire extinguishing agents.

5. I have been granted sixteen (16) U.S. Patents, at least thirteen (6) of which related to surfactants, and of which at least four (4) of which relate to fire fighting compositions.
6. I have been working in the field of surfactants since at least as early as 1975 and with fire fighting compositions since at least as early as 1982.
7. I have reviewed the Office Action dated February 28, 2005 in U.S. Application No. 10/600,810 and the references cited by the Examiner in that Office Action.
8. The Office Action dated February 28, 2005 in U.S. Application No. 10/600,810 contains the following statement with regard to Chen et al. (U.S. Patent No. 4,284,517) and Galleguillos et al. (U.S. Patent No. 6,361,768):

The fact that neither of the references directly state applicant's claimed limitation of: "the foam concentrate providing a fire fighting composition when mixed with water so that the fire fighting compositions does not form a stable seal on cyclohexane and meets UL 162, Class B performance criteria for at least one of AFFF agents, and fluoroprotein (FP) agents without requiring organic fluoride" as set forth in independent claim 1 is acknowledged but such is deemed moot because the compositions set forth in the specific examples of each patent are deemed to inherently meet applicant's claimed spreading limitations due to the high concentration of the high molecular weight acidic polymer in the aqueous compositions, and due to the high concentration of the high molecular weight acidic polymer in the aqueous compositions, and due to the negative to neutral spreading coefficients (SC) that such high molecular weight acidic polymer agents have in the aqueous compositions. Furthermore, th[e] fact that the references do not mention applicant's various tests is also deemed to be moot since the disclosed compositions are deemed to inherently meet one or more of these tests.

This statement is incorrect. There is nothing that would lead those skilled in the art to recognize the compositions referenced by the Examiner in Chen et al. and Galleguillos et al. would be suitable for fire fighting compositions or inherently have the UL 162, Class B performance for AFFF or FP agents, as defined in U.S. Application No. 10/600,810, for the following reasons:

The examples of U.S. Application No. 10/600,810 show that not all samples employing a high molecular weight acidic polymer (HMWAP) and a coordinating salt meet the UL 162, Class B performance criteria for AFFF agents and FP agents, as defined in U.S. Application No. 10/600,810. For instance, Sample R, which employed 1.4 wt% of HMWAP and 30 wt% magnesium sulfate as the coordinating salt did not meet UL 162, Class B performance criteria for AFFF agents, as it is defined in U.S. Application No. 10/600,810, because the sample exhibited a burnback time of less than five (5) minutes or greater. Additionally, several of the samples with varying amounts of HMWAP and coordinating salt set forth in the examples did not meet the UL

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162, Class B performance criteria for FP agents, as they are defined in U.S. Application No. 10/600,810.

To achieve the properties that are deemed by the Examiner to be inherent in the Chen et al. and Galleguillos et al. references, the proper quantities and quality of HMWAP and coordinating salt must be used, as was demonstrated in the examples of U.S. Application No. 10/600,810. The Chen et al. reference shows broadly the use of a divalent anions from brine solutions at a divalent anion concentration of 500 to 20,000 parts per million (col. 8, lines 37-43). Assuming that a suitable coordinating salt was present in such brine solution, even at the highest divalent anion concentration of 20,000 parts per million when used at the disclosed concentrations, this would be considerably lower than those used in the successful examples of U.S. Application No. 10/600,810.

The examples 21, 23 and 28 of Galleguillos et al., referenced by the Examiner, show hair product formulations that employ different amounts of coordinating salts with varying amounts of the copolymer of examples 18 or 10. At least one of the coordinating salts (Egs. 21, cetrimonium chloride) is a monovalent salt and would be unsuitable for the coordinating salt for the fire fighting compositions. Further, even assuming that the polymers and coordinating salts of Galleguillos et al. would be suitable, given the low quantities of coordinating salt in examples 21 and 23, and the low amount of polymer used in example 28, and comparing these amounts to those used in the test set forth in U.S. Application No. 10/600,810, there is nothing that would lead those skilled in the art to recognize that the compositions of Galleguillos et al. would inherently meet the UL 162, Class B performance tests for AFFF or FP agents, as defined in U.S. Application No. 10/600,810.

9. I have reviewed the publication entitled "Good Chemistry has never been so bad for fire!", which was cited by the Examiner in the Office Action dated February 28, 2005 for U.S. Application No. 10/600,810 and that was stated as being found at www.chemguard.com/home/corporate/body_foam_story.html. This address is for the website owned and operated by Chemguard, Inc. I am knowledgeable of Chemguard, Inc.'s website located at www.chemguard.com and its contents, particularly the webpage cited by the Examiner.

Although the cited webpage lists a copyright year date of 2001, this applies generally to the year the website was initially published and is not necessarily applicable to the specific information contained on the cited webpage. The pages of the website are often updated and the copyright year date does not necessarily reflect the true date of publication. Furthermore, as vice-president of research and development for Chemguard, Inc. and being very familiar with the U.S. patent process through work on my previous sixteen (16) patents, I was very careful to ensure that information regarding my invention was not published prior to the filing date of the above-identified U.S. patent application. Any information contained in the website that relates to my invention would have been published only upon my approval and subsequent to the filing date of U.S. Application No. 10/600,810.

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10. The Office Action in U.S. Application No. 10/600,810 dated February 28, 2005 contains the following statement:

Applicant's claims are deemed to be anticipated over said aqueous CHEM GUARD HS-100 concentrates prior to their addition to the AFFF agent. The said CHEM GUARD HS-100 aqueous concentrates are deemed to actually contain some coordinating salts in their makeup. Although the Article does not expressly teach that the aqueous CHEM GUARD HS-100 concentrates themselves "provide a fire fighting composition when mixed with water so that the fire fighting compositions does not form a stable seal on cyclohexane and meets UL 162, Class B performance criteria for at least one of AFFF agents, and fluoroprotein (FP) agents without requiring organic fluorine" as set forth in independent claim 1, such limitations are deemed to be inherently present due to the very high concentration of the CHEM GUARD HS-100 agent in the aqueous concentrate, and due to the negative to neutral spreading coefficients (SC) of the CHEM GUARD HS-100 agent in the aqueous concentrate.

This statement is incorrect. I am knowledgeable of the formulation of CHEM GUARD HS-100, which is produced by my company, Chemguard, Inc. The CHEM GUARD HS-100 product does not contain any coordinating salt that would provide a fire-fighting composition that does not form stable seal on cyclohexane and meets UL 162, Class B performance criteria for either AFFF agents or fluoroprotein (FP) agents, as they are defined in U.S. Application No. 10/600,810, without requiring organic fluorine. Further, the CHEM GUARD HS-100 does not contain any polyvalent coordinating salt that would provide the UL 162, Class B performance for AFFF or FP agents, as defined in U.S. Application No. 10/600,810.

11. The Office Action in U.S. Application No. 10/600,810 dated February 28, 2005 contains the following statement with regard to the rejection based upon the primary references Chiesa, Jr. (U.S. Patent No. 4,060,489), Chiesa, Jr. (U.S. Patent No. 4,387,032), Chiesa, Jr., et al. (U.S. Patent No. 4,464,267), Jackovitz et al. (U.S. Patent No. 3,422,011), Tsuji (U.S. Patent No. 4,306,979), Ferguson et al. (U.S. Patent No. 3,457,172) or Kroke et al. (U.S. Patent No. 3,579,466), all individually in combination with the secondary reference entitled "Good Chemistry has never been so bad for fire!", that was listed as being found at www.chemguard.com/home/corporate/body_foam_story.html:

It would have been obvious to one having ordinary skill in the art to use the disclosure of the secondary reference to the advantages of adding high molecular weight acidic polymers (e.g. CHEM GUARD HS-100) to AFFF and/or AR-AFFF foam concentrates as motivation to actually had [sic] them to the fluorosurfactant free foam concentrates as taught by and disclosed by anyone of the primary references. The fact that none of the applied primary references or secondary reference directly state applicant's claimed limitation of: "the foam concentrate providing a fire fighting composition when mixed with water so that the fire fighting composition does not form a stable seal on cyclohexane and meets UL 162, Class B performance criteria for at least one of AFFF agents, and fluoroprotein (FP) agents without requiring organic fluorine" as set forth in independent claim 1 is acknowledged but such is deemed to be moot.

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Applicant's invention is deemed to be obvious over the above combinations of the primary references and secondary reference because it is well known in the art that foam concentrates that do not contain fluorosurfactants will most frequently not form stable seals on cyclohexane. This is one of the main reasons why so many foam concentrates actually do include fluorosurfactants so that they will form stable seals on cyclohexane. Furthermore, the fact that the references do not mention applicant's various tests is deemed moot since the disclosed foam concentrates are deemed to inherently meet one or more of these tests when used according to the disclosed process.

This statement is incorrect. Those skilled in the art would not recognize from the combinations that the UL 162, Class B performance tests for AFFF or FP agents, as defined in U.S. Application No. 10/600,810 would be inherently met by the various combinations for the following reasons:

Even assuming the secondary reference entitled "Good Chemistry has never been so bad for fire!" is valid prior art, it does not specify any amounts of CHEM GUARD HS-100 to be added to any composition. Nor does the CHEM GUARD HS-100 product provide any suitable coordinating salt, as discussed above.

The examples of U.S. Application No. 10/600,810 show that not all samples employing HMWAP and a coordinating salt meet the UL 162, Class B performance criteria for AFFF agents and FP agents, as defined in U.S. Application No. 10/600,810. To achieve the properties that are deemed by the Examiner to be inherent in the combination of references, the proper quantities and quality of high molecular weight acidic polymer (HMWAP) and coordinating salt must be used. The combination of references cited by the Examiner does not provide such information regarding the proper combination of any HMWAP and coordinating salt such that those skilled in the art would recognize the characteristics, which are deemed by the Examiner to be inherent, are present.

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12. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Respectfully submitted,



Kirtland P. Clark

Dated: 6-27-05